

CLAIMS

1/ A landing bearing for a vacuum pump, comprising:

- a rotor ring (12) and a coaxial stator ring (13) defining a roller housing (19) between them; and

5 - rolling elements (14a, 14b, 14c, 14d) housed one after another in the roller housing (19) and rolling on respective running tracks (20, 21) of the rotor ring (12) and stator ring (13);

10 the bearing being characterized in that the rolling elements comprise an alternating succession of rolling elements (14a, 14c) having outside surfaces made of steel and of rolling elements (14b, 14d) having outside surfaces made of ceramic.

15 2/ A landing bearing according to claim 1, characterized in that the rolling elements (14, 14a, 14b, 14c, 14d) are spherical balls.

20 3/ A landing bearing according to claim 1 or claim 2, characterized in that the steel rolling elements (14a, 14c) are made of stainless steel.

25 4/ A landing bearing according to any one of claims 1 to 3, characterized in that the ceramic rolling elements (14b, 14d) are made of silicon nitride.

5/ A landing bearing according to any one of claims 1 to 4, characterized in that the running tracks (20, 21) are made of stainless steel.

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6/ A landing bearing according to any one of claims 1 to 5, characterized in that the ceramic rolling elements (14b, 14d) are of a diameter which is slightly smaller than the diameter of the steel rolling elements (14a, 14c) under normal operating temperature conditions.

7/ A vacuum pump including at least one landing mechanical bearing (9) comprising a landing bearing according to any one of claims 1 to 6.

5 8/ A vacuum pump according to claim 7, comprising a rotor (4) mounted to rotate in a stator (1) with at least one radial magnetic bearing (7) which, in normal operation, holds the rotor (4) in a radially centered position inside the stator (1), and with at least one mechanical 10 landing bearing (9) comprising a landing bearing which, in the event of normal operation of the radial magnetic bearings (7) failing, limits radial displacements of the rotor (4) within the stator (1) by ensuring that the rotor (4) remains approximately centered, radial 15 clearance (18) being provided between one of the rotor ring (12) or stator ring (13) and the corresponding bearing surface (17) of the rotor (4) or of the stator (1).